Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Petition for Waiver of Rules	)	GN Docket No. 15-178
Requiring Support of TTY	)	
Technology	)	

REPORT

Competitive Carriers Association ("CCA")[1] supports the Federal Communications Commission's ("FCC" or "Commission") continued efforts to facilitate the transition from text telephone technology ("TTY") to real-time text ("RTT"), or an alternative accessibility solution. The *Report & Order and Further Notice of Proposed Rulemaking* ("*Report & Order*")[2] took significant steps to advance this mutual goal, and CCA's members have continued to pursue innovative technologies to enable more consumers to fully benefit from advanced communications services since the item's adoption.[3] The *Report & Order* extended the waiver granted in the *CCA Waiver Order*, including the expectation that participating members submit reports detailing their progress toward meeting the FCC's RTT requirements.[4] In satisfaction of

[1] CCA is the nation's leading association for competitive wireless providers and stakeholders across the United States. CCA's membership includes nearly 100 competitive wireless providers ranging from small, rural carriers serving fewer than 5,000 customers to regional and national providers serving millions of customers. CCA also represents associate members consisting of small businesses, vendors, and suppliers that serve carriers of all sizes.

[2] *Transition from TTY to Real-Time Text Technology; Petition for Rulemaking to Update the Commission's Rules for Access to Support the Transition from TTY to RealTime Text Technology, and Petition for Waiver of Rules Requiring Support of TTY Technology*, Report and Order and Further Notice of Proposed Rulemaking, 82 FCC Rcd 7699 (2017) ("*Report & Order*").

[3] *Petition for Waiver of Rules Requiring Support of TTY Technology*, Order, DA 16-435 (rel. Apr. 20, 2016) ("*CCA Waiver Order*"). Prior to the *Report & Order*, the Commission granted CCA's request for a waiver of applicable TTY-related requirements for its members' IP-enabled wireless services with the same conditions as waivers previously granted to AT&T, Cellular South, and Verizon

[4] The *CCA Waiver Order* required CCA to file, once every six months on behalf of its participating

this condition, CCA hereby submits a third Progress Report on behalf of its participating members, with corresponding carrier information in Exhibit A.[5]

I. CCA'S MEMBERS CONTINUE TO PURSUE INNOVATIVE TECHNOLOGIES TO SUPPORT ADVANCED COMMUNICATIONS SERVICES FOR ALL CONSUMERS.

While implementing new technologies often is mirrored by challenges, CCA's members believe RTT technology will be beneficial, especially over new IP-based mediums.[6] As noted in CCA's first and second Progress Reports, CCA's members are committed to developing and implementing innovative technologies like RTT, and to working alongside policymakers and industry stakeholders to ensure innovative services are accessible to all consumers.[7] Specifically, CCA's participating members are striving to implement industry standard capabilities in their 4G LTE wireless networks to support interoperable RTT solutions, where applicable. For example, CCA member Cellular South, Inc. recently "implemented industry standard capabilities in its 4G LTE network, including the Internet Engineering Task Force

members, "reports detailing participating members' progress toward implementing RTT." CCA *Waiver Order* ¶ 18.

[5] On April 20, 2016, CCA filed, on behalf of its participating members, its first Progress Report per the requirements imposed in CCA's *Waiver Order* and the FCC's *RTT Report & Order*. Additionally, on August 11, 2016, CCA also filed, on behalf of its participating members, a preliminary report with the Commission describing participating members' initial plans for meeting commitments to develop and deploy RTT or an alternative text-based solution that is accessible, interoperable with other solutions, and backward compatible with TTY technology. *See* Preliminary Report of Competitive Carriers Association, GN Docket No. 15-178 (filed Aug. 11, 2016) ("CCA Preliminary Report").

[6] *See* Comments of Competitive Carriers Association, CG Docket No. 16-145, GN Docket No. 15-178 (filed July 11, 2016) ("CCA RTT NPRM Comments"); *and* Reply Comments of Competitive Carriers Association, CG Docket No. 16-145, GN Docket No. 15-178 (filed July 25, 2016) ("CCA RTT NPRM Reply Comments"). *See also* Comments of Competitive Carriers Association, CG Docket No. 10-213 (filed Sept. 7, 2016).

[7] Report of Competitive Carriers Association, GN Docket No. 15-178 (filed Oct. 20, 2016) ("First Progress Report"); Report of Competitive Carriers Association, GN Docket No. 15-178 (filed Apr. 20, 2017) ("Second Progress Report").

("IETF") standard RFC 4103,"[8] and United States Cellular Corporation is "evaluating the RFC 4103 transport protocol" to support an interoperable RTT solution.[9] Likewise, CCA's members remain committed to undertaking the necessary steps to ensure that critical 911 and 711 services currently supported by TTY can be implemented in RTT. As evidenced by these ongoing efforts, CCA's participating members are working to ensure an effective transition that achieves interoperability and backwards compatibility between legacy networks and alternative solutions to TTY.

II. CCA'S MEMBERS CONTINUE TO WORK ALONGSIDE INDUSTRY STAKEHOLDERS TO MITIGATE IMPEDIMENTS TO RTT DEPLOYMENT OR AN ALTERNATIVE ACCESSIBILITY SOLUTION.

While CCA supports the FCC's focus on RTT advancements, CCA members' ability to achieve RTT deployment and additional requirements set forth in the *Report & Order* continue to be largely dependent on other participants in the wireless ecosystem, including but not limited to Original Equipment Manufacturers ("OEMs").[10] Specifically, while CCA understands that the Alliance for Telecommunications Industry Solutions ("ATIS") has set industry standards for RTT development,[11] devices that integrate ATIS's specification must be available to all carriers. Since CCA's last Progress Report, participating members continue to work with vendors to ascertain RTT development timeframes and capabilities. Indeed, Cellular South, Inc.'s most recent Report notes that the provider is "discussing with vendors the development of the [over

[8] Report of Cellular South Inc., GN Docket No. 15-178 at 2 (filed May 25, 2017) ("C Spire Report").

[9] *See* Exhibit A.

[10] *See, e.g.*, CCA First Progress Report, CCA Second Progress Report.

[11] Report of AT&T, GN Docket No. 15-178 at 1, fn. 2 (filed Oct. 6, 2017) ("AT&T Progress Report").

the top] RTT solution."[12] Yet, the fact remains that competitive Tier II and Tier III carriers cannot make RTT-capable devices available before they deploy RTT in their networks.

Moreover, competitive providers often are unable to obtain the newest handsets, an issue that continues to plague compliance with other regulatory obligations.[13] As CCA has noted in other contexts, competitive carriers often require additional time to obtain devices that are capable of supporting enhanced technologies, or to ensure there are currently devices in the market that can be enabled on the carrier's network.[14] Indeed, Tier II and Tier III carriers' access to these devices will be subject to OEMs willingness to make them available. And AT&T's recent Report similarly notes that "timelines could be impacted by unexpected delays, manufacturer development cycles, and unexpected impacts from operating system changes."[15] Thus, even if Tier II and Tier III carriers could make RTT-capable handsets available independently of deploying RTT capability in their networks, they are unlikely to obtain RTT-capable devices from manufacturers on the same timeframe as AT&T and Verizon.

III. CONCLUSION.

Once the requisite network upgrades are made, and devices are available to all carriers, CCA's members look forward to launching IP-based wireless services, and will be prepared to

[12] C Spire Report at 2.

[13] *See* Petition for Waiver, or in the alternative, Request for Extension of Time of Competitive Carriers Association, PS Docket No. 15-91 (filed August 16, 2017) ("CCA WEA Petition"). *See also, ex parte* letter from Rebecca Murphy Thompson, EVP & General Counsel, CCA, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 15-91 (filed Oct. 6, 2017) ("CCA WEA Roadmap EP"); *and, ex parte* letter from Christopher Nierman, Director, Federal Regulatory Affairs, GCI, to Marlene H. Dortch, Secretary, FCC, PS Docket No. 07-114 at 2-3 (filed July 28, 2010).

[14] *See* CCA WEA Roadmap EP at 2 (noting, "rural and regional carriers are often delayed as long as twelve months in receiving the requisite equipment needed to provide consumers with the latest services and devices.").

[15] AT&T Report at 3.

deploy the infrastructure necessary to support an alternative accessibility solution. That said, progress toward implementing RTT remains contingent on a variety of factors outside of many CCA members' control, including resource constraints, standards setting cycles, manufacturer development, and third-party capabilities.[16] Despite these obstacles, CCA's members remain actively engaged in determining next steps necessary to ensure interoperability with alternative solutions and legacy networks, within the most expeditious timeframe, and to deploying alternatives to TTY, including RTT. The remainder of CCA's third Progress Report, including carrier specific information filed on behalf of its members, is attached as Exhibit A.

Respectfully submitted,

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Attachments: Exhibit A - Participating CCA Member Progress Reports

[16] *See* CCA RTT NPRM Comments at 4-6; CCA RTT NPRM Reply Comments at 3. *See also* AT&T Report at 1 ("[t]arget dates continue to be dependent on mobile device manufacturer development cycles and success resolving software and other challenges that arise.").

EXHIBIT A

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CCA Carrier Members Not *Yet* Deploying an Alternative Accessibility Solution; Timing Undetermined

The majority of CCA's participating members are committed to continued exploration of an alternative accessibility solution but have not yet made plans to deploy IP-based wireless services in the initial relevant timeframe by June 30, 2020. Each CCA carrier member listed below will update the Commission on progress as necessary. As noted in the attached Report, many of CCA's participating members are rural and regional carriers unable to influence the equipment marketplace and, therefore, are not currently involved in deploying RTT. CCA's carrier members also are dependent on availability of affordable devices, manufacturer cycles, and vendor capabilities. CCA and its members look forward to continued collaboration with industry stakeholders to meet the FCC's accessibility goals.

Consistent with obligations defined in the FCC's *RTT Report & Order* and the *CCA Waiver Order*, CCA's participating carrier members commit to implementing industry standard capabilities in networks to support interoperable solutions when they begin to deploy an alternative accessibility solution. Likewise, when CCA's participating carrier members begin to offer IP-based wireless services, they commit to implementing industry standard capabilities in their networks to support interoperable RTT solutions and backward capability with TTY. Carriers also will ensure that 911 calls are delivered in accordance with the applicable obligations to transmit 911 calls to appropriate PSAPs or emergency authorities. CCA's members remain actively engaged with CCA to stay informed of educational and industry efforts to implement RTT, and to ensure accessibility compliance. A list of participating CCA carrier members that have opted-in to CCA's TTY waiver and that seek to meet these commitments when they begin to deploy an alternative accessibility solution is below.

Agri-Valley Communications, Inc. d/b/a Agri-Valley Services

Americell PA-3, LP d/b/a Indigo Wireless

ATN International, Inc., and affiliates

Barnes City Telephone Cooperative

Carolina West Wireless, Inc.

Cellular Network Partnership d/b/a Pioneer Cellular

Central Louisiana Cellular, LLC d/b/a Cellular One

CML Telephone Cooperative Association

Cross Wireless, LLC and its affiliate Cross-Valliant Cellular Partnership, d/b/a Bravado Wireless

East Kentucky Network, LLC d/b/a Appalachian Wireless

FTC Communications, Inc.

GCI Communication Corp.

Inland Cellular, LLC

Iowa Wireless Services, LLC d/b/a iWireless

Kentucky RSA #3 Cellular General Partnership;
Kentucky RSA #4 Cellular General Partnership;
Cumberland Cellular Partnership, collectively Bluegrass Cellular

Missouri RSA 5 Partnership d/b/a Chariton Valley Wireless Services

NE Colorado Cellular, Inc. d/b/a Viaero Wireless

Nex-Tech Wireless, LLC

Northwest Missouri Cellular Limited Partnership d/b/a NorthwestCell

Nsighttel Wireless, LLC d/b/a Cellcom

Panhandle Telecommunication Systems, Inc. d/b/a PTCI

Pine Belt Cellular, Inc. d/b/a Pine Belt Wireless

Pinpoint Wireless Inc. d/b/a BLAZE Wireless

Premier Wireless, Inc.

RSA 1 Limited Partnership;
Iowa RSA 2 Limited Partnership, collectively Chat Mobility

Rural Independent Network Alliance LLC

Shenandoah Telecommunications Company, Inc. d/b/a Shentel

South Slope Cooperative Telephone Company d/b/a South Slope Wireless

Southern Communications Services, Inc. d/b/a Southern Linc

Texas 10, LLC d/b/a Cellular One

Thumb Cellular, LLC

Triangle Communication System, Inc.

Uintah Basin Electronic Telecommunications, LLC d/b/a STRATA Networks

United Wireless Communications, Inc.

Upper Midwest Wireless, LLC, and its affiliates

The remainder of CCA's participating carrier members that opted-in to CCA's waiver are listed below. Pursuant to the *CCA Waiver Order,* each carrier provides an update on its progress and status to developing and deploying its selected accessibility solution(s) including information on interoperability with the technologies deployed or to be deployed by other service providers, backward compatibility with TTYs, and efforts to ensure delivery of 911 calls to the appropriate PSAP or emergency authority. CCA and its members look forward to ongoing collaboration with the FCC and industry to promote accessibility for all consumers.

Sprint Corporation

Question	**Member Answer**
Please provide company identification information, including whether you operate under a d/b/a.	Sprint Corporation on behalf of its brands Sprint, Sprint Prepaid, Boost Mobile, Virgin Mobile USA and Assurance Wireless (hereinafter "Sprint").
Please provide specific evidence of your progress and status toward developing and deploying an alternative accessibility solution to TTY, if any.	Sprint has developed a cross-departmental team that meets regularly to discuss an accessible RTT solution. This project-focused team includes representatives from Sprint's Network, Product, Relay, Legal/Regulatory and Standards organizations. The team monitors closely the work within the industry standards bodies to ensure Sprint's ultimate solution will comport with these standards to ensure seamless interoperable communications as well as backwards compatibility.
Please provide *an estimated timetable* of your plans to develop and deploy an alternative accessibility solution to TTY, if applicable.	Sprint is planning to deploy RTT support for its IP-based wireless communications. Sprint's timeline to deploy an all IP network for voice communications (e.g., VoLTE) is undetermined at this point. However, as Sprint deploys IMS as part of its VoLTE roll-out, Sprint will incorporate RTT support. In the interim, Sprint will continue to support TTY over its circuit-switched voice network.
Please provide information on interoperability with the technologies deployed or to be deployed by other service providers. Have you encountered obstacles to achieving interoperability? If so, please describe your efforts to overcome these barriers.	Sprint's concerns regarding interoperability center on IETF RFC 4103 and OEM adoption. While RFC 4103 interoperability has been defined by the FCC as minimum interoperability, there are other aspects for both device and network deployments not covered by RFC 4103 which are being developed in other standards bodies such as ATIS. These standards, which are not complete, affect OEMs ability to develop RTT (RFC 4103) compatible handsets.
Please describe your efforts to ensure backward compatibility with TTYs. Have you encountered obstacles to	Sprint believes backwards compatibility solutions will be unique to each carrier and urges the FCC to provide regulatory flexibility, so that each carrier

achieving backward compatibility with TTY technology? If so, describe your efforts to overcome these barriers.	may determine the best approach for its particular network/architecture as well as handsets.
To the extent a participating CCA member begins to make RTT available, it must ensure that all 911 calls using this technology are delivered in accordance with the obligation to transmit 911 calls to the appropriate PSAP or local emergency authority. Please describe your efforts to ensure delivery of 911 calls to the appropriate PSAP, if applicable.	Sprint endeavors to meet this goal guided by industry standards supporting 911 call compatibility. Testing will be of paramount importance; however, with Sprint's VoLTE transition many months away, Sprint is not nearing this stage of deployment. Nevertheless, Sprint is working with other carriers on RTT-TTY interoperability testing. Sprint looks forward to updating the Commission on this important aspect of RTT when it is closer to deploying a solution.
Please provide information related to "ongoing coordination with other carriers working to develop RTT, educational efforts regarding RTT, and implementation plans that will facilitate RTT."	Sprint participates in numerous industry standards bodies involved with RTT development, including notably, two ATIS committees: the Wireless Technology and Systems Committee (WTSC), and the Packet Technologies and Systems Committee (PTSC). Sprint also works individually with consumer interest groups and collectively with CTIA and CCA on a variety of outreach/educational activities. As the nation's leading provider of Relay Services, Sprint is proud of its service to deaf, hard of hearing, speech impaired and deaf-blind consumers and looks forward to ensuring RTT will be implemented in a way to further enrich the lives of people in these communities. Sprint, as a participant in the Commission's Disability Advisory Committee (DAC) is also identifying TRS-related RTT issues.

T-Mobile US, Inc.

Question	Member Answer
Please provide company identification information, including whether you operate under a d/b/a.	T-Mobile US, Inc.[17]
Please provide specific evidence of your progress and status toward developing and deploying an alternative accessibility solution to TTY, if any.	T-Mobile is implementing industry standards that will support interoperable RTT solutions for its 4G LTE network based on RFC 4103.
Please provide *an estimated timetable* of your plans to develop and deploy an alternative accessibility solution to TTY, if applicable.	T-Mobile is on track to timely deploy an accessibility solution in its network based on RFC 4103 by the year-end 2017 deadline. The company is actively engaged in testing aspects of its solution. In addition, T-Mobile is on track to secure an RTT-enabled handset to offer as part of its device portfolio by the required year-end 2017 deadline.
Please provide information on interoperability with the technologies deployed or to be deployed by other service providers. Have you encountered obstacles to achieving interoperability? If so, please describe your efforts to overcome these barriers.	As part of its deployment, T-Mobile is actively testing RTT interoperability with other service providers for both direct IP connectivity and legacy connectivity. The company is engaged in a comprehensive, multi-faceted testing plan for assessment of various use cases.
Please describe your efforts to ensure backward compatibility with TTYs. Have you encountered obstacles to achieving backward compatibility with TTY technology? If so, describe your efforts to overcome these barriers.	T-Mobile is testing its RTT solution for backward compatibility with TTY technology. As part of the testing process, we are collecting information that offers insight into the end-user experience, which will be used to help inform the company's customer education and outreach about communications between RTT and TTY users.
To the extent a participating CCA member begins to make RTT available, it must ensure that all 911 calls using this technology are delivered in accordance with the obligation to transmit 911 calls to the appropriate PSAP or local	T-Mobile is committed to accurately transmitting 911 calls and is testing its RTT solution to ensure 911 calls are transmitted as appropriate.

[17] T-Mobile US, Inc., a publicly traded company, provides services through its subsidiaries and operates its flagship brands, T-Mobile and Metro PCS. This document addresses the network of T-Mobile US, Inc.

emergency authority. Please describe your efforts to ensure delivery of 911 calls to the appropriate PSAP, if applicable.	
Please provide information related to "ongoing coordination with other carriers working to develop RTT, educational efforts regarding RTT, and implementation plans that will facilitate RTT."	T-Mobile is an active participant in the Alliance for Telecommunications Industry Solution (ATIS) RTT standards development working groups. The company's cross-functional team, comprised of engineers and business managers, are collaborating on the deployment of its RTT solution, specifically focusing on the wireless network, wireless handsets, emergency calling capabilities and the accessibility experience. T-Mobile works with CCA and CTIA on outreach/educational opportunities regarding RTT in addition to taking steps to inform its customers about certain limitations of TTY operations over IP-technologies.

United States Cellular Corporation

Question	Member Answer
Please provide company identification information, including whether you operate under a d/b/a.	United States Cellular Corporation ("U.S. Cellular"), its Subsidiaries and Affiliates (collectively referred to as "USCC").
Please provide specific evidence of your progress and status toward developing and deploying an alternative accessibility solution to TTY, if any.	U.S. Cellular continues to take steps toward achieving an accessible RTT solution. A project team, consisting of technical experts, network planners, and a device specialist, was identified to review and evaluate relevant use cases that will frame the design and implementation of a full RTT solution, native to the network. Network architecture design and planning is being contemplated to support use cases that mimic a real-world environment of accessibility services and features. The cases cover interoperability, backwards compatibility with TTY, and 911 calls to the appropriate PSAP or Public Safety termination point.
Please provide *an estimated timetable* of your plans to develop and deploy an alternative accessibility solution to TTY, if applicable.	USCC is committed to achieving RTT network readiness within the relevant FCC timeframe. Analysis of the scope, use cases, and reference architecture has confirmed the project plan and milestones to deliver RTT on or before the FCC requirement to do so.
Please provide information on interoperability with the technologies deployed or to be deployed by other service providers. Have you encountered obstacles to achieving interoperability? If so, please describe your efforts to overcome these barriers.	The IETF RFC 4103 is considered a critical component toward making interoperability functional across commercial platforms. USCC is evaluating the RFC 4103 transport protocol to incorporate into an accessible RTT solution. USCC currently has inquiries into the device OEMs to determine their timelines and roadmaps regarding RTT-enabled handsets and their interoperability with RTT solutions, and we continue to evaluate partner roaming scenarios with the enhanced functionality that VoLTE networks allow.
Please describe your efforts to ensure backward compatibility with TTYs. Have you encountered obstacles to achieving backward compatibility with TTY technology? If so, describe your efforts to overcome these barriers.	USCC is continuing to evaluate dedicated architecture and design that will support industry standards capabilities for TTY backwards compatibility, such as accessibility to 911 emergency services, TRS support, and peer-to-peer call sessions.
To the extent a participating CCA member begins to make RTT	USCC presently has not deployed RTT but intends to do so with a standards-based approach supporting 911

available, it must ensure that all 911 calls using this technology are delivered in accordance with the obligation to transmit 911 calls to the appropriate PSAP or local emergency authority. Please describe your efforts to ensure delivery of 911 calls to the appropriate PSAP, if applicable.	call compatibility to PSAP destinations.
Please provide information related to "ongoing coordination with other carriers working to develop RTT, educational efforts regarding RTT, and implementation plans that will facilitate RTT."	Currently, USCC is collaborating with the two major wireless carrier industry trade associations to respond to the FCC's "Transition of TTY to RTT" FNPRM and also monitors participating carriers' RTT progress reports for implementation plans. USCC anticipates that educational materials concerning RTT will be posted on its own customer facing website and further cross-referenced on industry association websites.